

Name: \_\_\_\_\_

Date: \_\_\_\_\_

**Exam: Function Reflections (Practice version 46)**

1. Let function  $f$  be defined by the polynomial below:

$$f(x) = -7x^5 + 2x^4 + 5x^3 - 9x^2 - 3x - 8$$

Draw lines that match each function reflection with its polynomial:

**Reflections**

$-f(-x)$  •

$-f(x)$  •

$f(-x)$  •

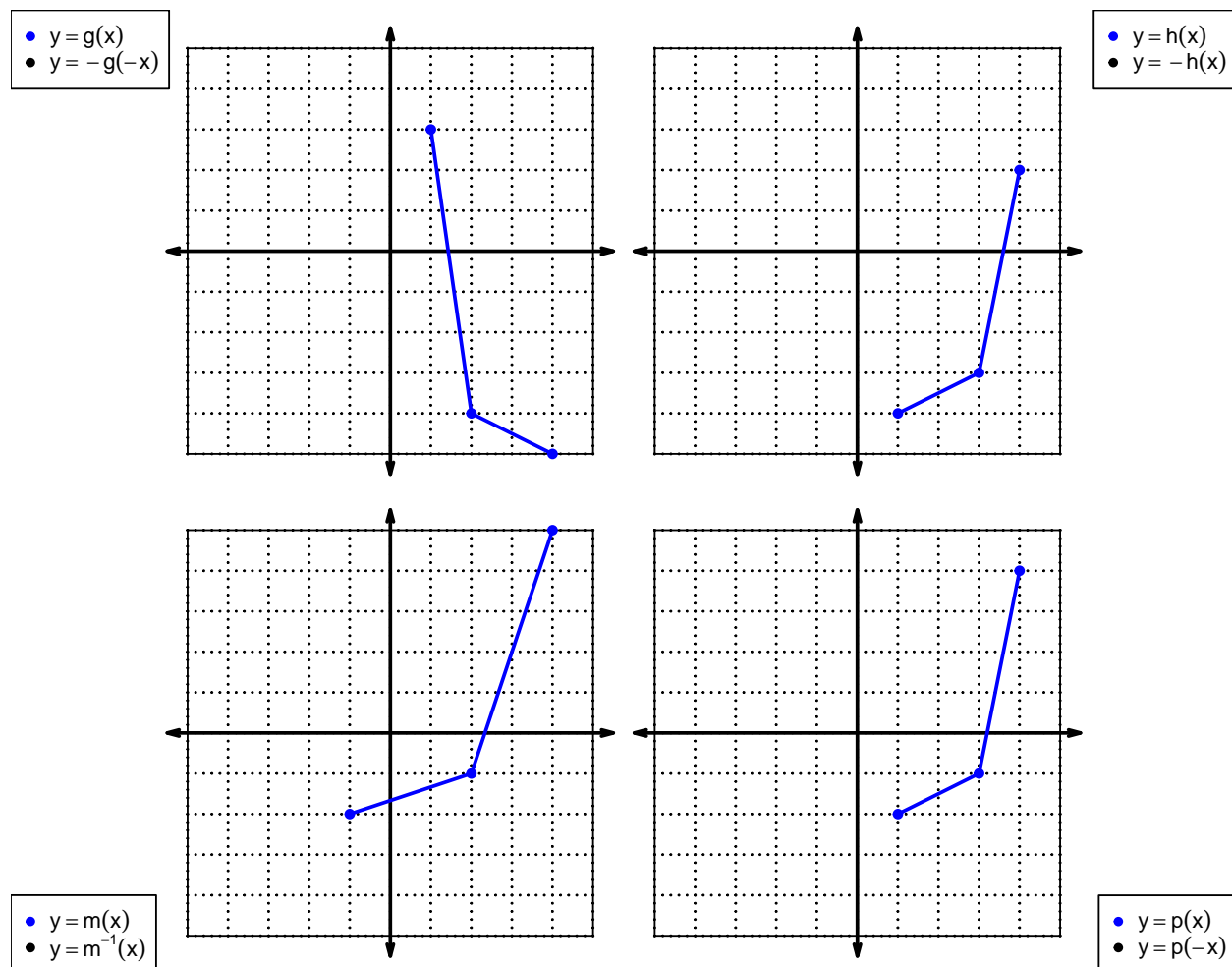
**Polynomials**

•  $7x^5 - 2x^4 - 5x^3 + 9x^2 + 3x + 8$

•  $-7x^5 - 2x^4 + 5x^3 + 9x^2 - 3x + 8$

•  $7x^5 + 2x^4 - 5x^3 - 9x^2 + 3x - 8$

2. In each  $xy$  plane shown below, a function is graphed with blue. Draw the indicated reflections (as a second curve, indicated in legend) with black (or with whatever you have). The  $x$  axis is horizontal and the  $y$  axis is vertical (as typical), and the scale is equal on both axes.



## Exam: Function Reflections (Practice version 46)

For all questions on this page, the functions  $f$ ,  $g$ , and  $h$  are defined by the table below.

$x$	$f(x)$	$g(x)$	$h(x)$
1	8	2	4
2	2	7	5
3	7	4	2
4	6	5	9
5	3	6	1
6	9	1	6
7	4	9	3
8	5	3	7
9	1	8	8

3. Evaluate  $g(5)$ .

4. Evaluate  $h^{-1}(4)$ .

5. Assuming  $h$  is an **odd** function, evaluate  $h(-9)$ .

6. Assuming  $f$  is an **even** function, evaluate  $f(-3)$ .

## Exam: Function Reflections (Practice version 46)

7. A function,  $f$ , is **even** if  $f(x) = f(-x)$  for all  $x$  in the domain. A function,  $g$ , is **odd** if  $g(x) = -g(-x)$  for all  $x$  in the domain.

Let polynomial  $p$  be defined with the following equation:

$$p(x) = x^2 - x$$

- a. Express  $p(-x)$  as a polynomial in standard form.

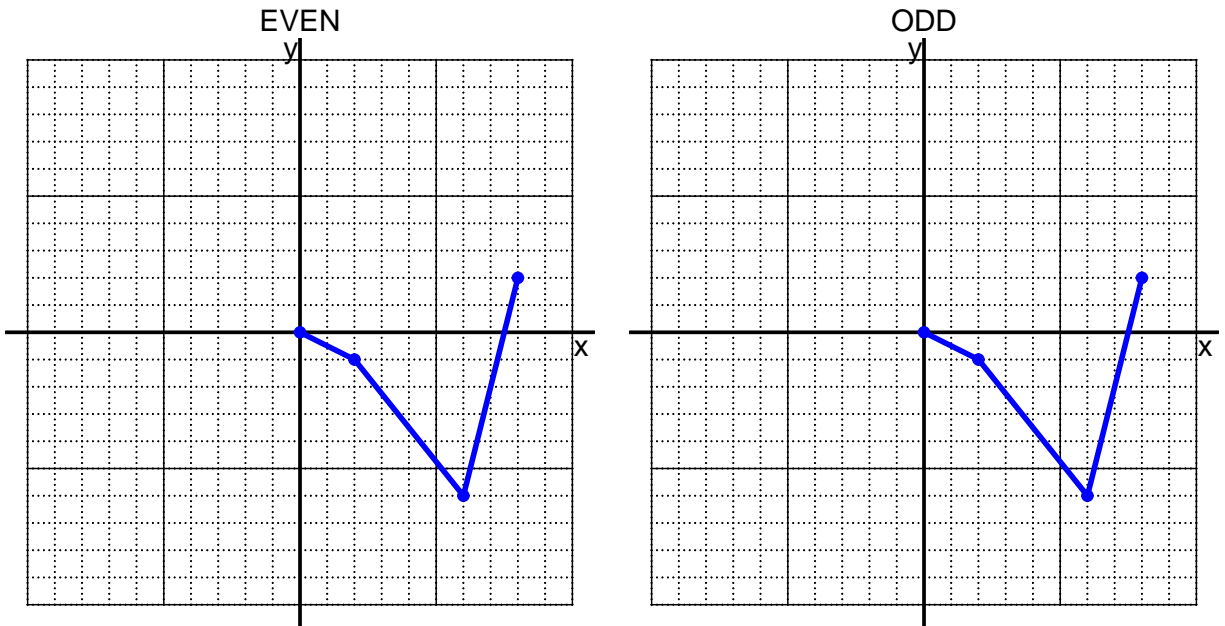
- b. Express  $-p(-x)$  as a polynomial in standard form.

- c. Is polynomial  $p$  even, odd, or neither?

- d. Explain how you know the answer to part c.

## Exam: Function Reflections (Practice version 46)

8. I have drawn half of a function. Draw the other half to make it even or odd.



9. Let function  $f$  be defined with the equation below.

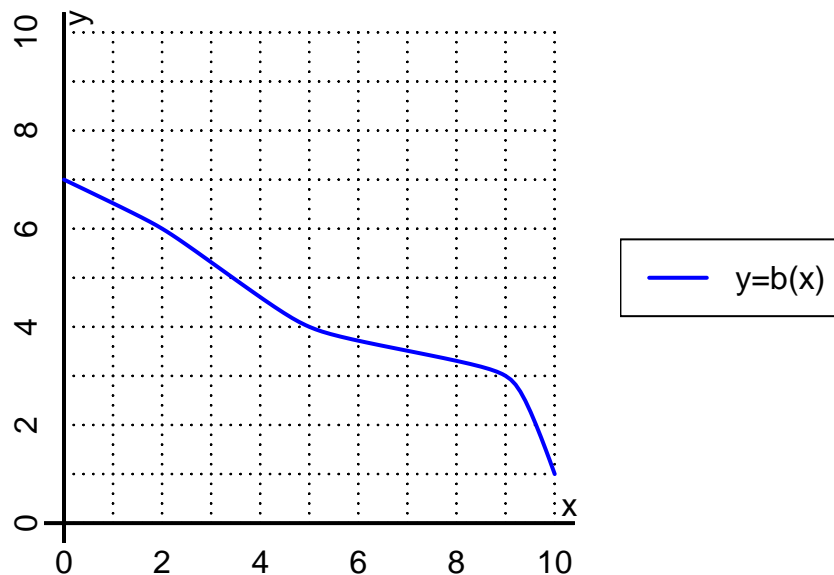
$$f(x) = 8(x + 9)$$

- a. Evaluate  $f(2)$ .

- b. Evaluate  $f^{-1}(96)$ .

## Exam: Function Reflections (Practice version 46)

10. The function  $b$  is represented by the curve  $y = b(x)$  graphed below.



a. Evaluate  $b(5)$ .

b. Evaluate  $b^{-1}(6)$ .

## Exam: Function Reflections (Practice version 46)

11. Function  $f$  is defined by the table below.

a. Complete the columns for  $-f(x)$  and  $f(-x)$  and  $-f(-x)$ .

$x$	$f(x)$	$-f(x)$	$f(-x)$	$-f(-x)$
-2	7			
-1	-6			
0	0			
1	-6			
2	7			

b. Is function  $f$  even, odd, or neither?

c. How do you know the answer to part b?